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IXYS Corporation
DSEI19-06AS

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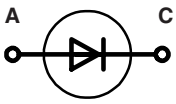
sales@integrated-circuit.com

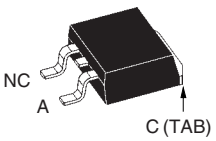
Fast Recovery Epitaxial Diode (FRED)

V_{RRM} = 600 V
I_{FAVM} = 20 A
t_{rr} = 35 ns

V_{RSM} V	V_{RRM} V	Type
600	600	DSEI 19-06AS



TO-263 AA



A = Anode, C = Cathode,
NC = No connection, TAB = Cathode

Symbol	Conditions	Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$	25	A
I_{FAVM} ①	T_C = 65°C; rectangular, d = 0.5	20	A
I_{FRM}	t_P < 10 µs; rep. rating, pulse width limited by T_{VJM}	150	A
I_{FSM}	T_{VJ} = 45°C; t = 10 ms (50 Hz), sine	100	A
	t = 8.3 ms (60 Hz), sine	110	A
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	85	A
	t = 8.3 ms (60 Hz), sine	95	A
I^2t	T_{VJ} = 45°C t = 10 ms (50 Hz), sine	50	A^2s
	t = 8.3 ms (60 Hz), sine	50	A^2s
	T_{VJ} = 150°C; t = 10 ms (50 Hz), sine	36	A^2s
	t = 8.3 ms (60 Hz), sine	37	A^2s
T_{VJ}		-40...+150	°C
T_{VJM}		150	°C
T_{stg}		-40...+150	°C
P_{tot}	T_C = 25°C	61	W
Weight		2	g

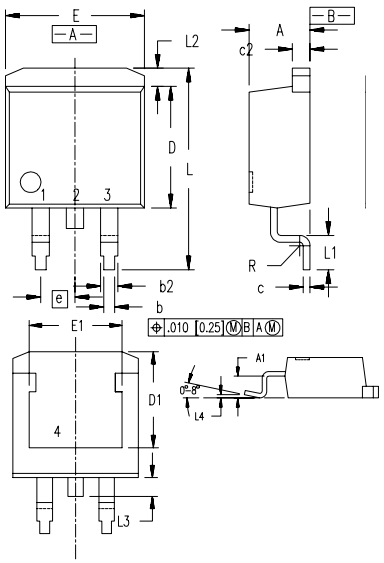
Symbol	Conditions	Characteristic Values typ.	max.	
I_R	T_{VJ} = 25°C; $V_R = V_{RRM}$		50	µA
	T_{VJ} = 25°C; V_R = 0.8 • V_{RRM}		25	µA
	T_{VJ} = 125°C; V_R = 0.8 • V_{RRM}		3	mA
V_F	I_F = 16 A; T_{VJ} = 150°C		1.5	V
	T_{VJ} = 25°C		1.7	V
V_{T0}	For power-loss calculations only		1.12	V
r_T	$T_{VJ} = T_{VJM}$		23.2	mΩ
R_{thJC}			2	K/W
t_{rr}	I_F = 1 A; -di/dt = 50 A/µs; V_R = 30 V; T_{VJ} = 25°C	35	50	ns
I_{RM}	V_R = 350 V; I_F = 12 A; $-di_F/dt$ = 100 A/µs; L ≤ 0.05 µH; T_{VJ} = 100°C	4	4.4	A

① I_{FAVM} rating includes reverse blocking losses at T_{VJM}, V_R = 0.8 V_{RRM}, duty cycle d = 0.5
Data according to IEC 60747

Features

- International standard surface mount package JEDEC TO-263 AA
- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low I_{RM}-values
- Soft recovery behaviour
- Epoxy meets UL 94V-0

TO-263 AA Outline



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.06	4.83	.160	.190
A1	2.03	2.79	.080	.110
b	0.51	0.99	.020	.039
b2	1.14	1.40	.045	.055
c	0.46	0.74	.018	.029
c2	1.14	1.40	.045	.055
D	8.64	9.65	.340	.380
D1	7.11	8.13	.280	.320
E	9.65	10.29	.380	.405
E1	6.86	8.13	.270	.320
e	2.54	BSC	.100	BSC
L	14.61	15.88	.575	.625
L1	2.29	2.79	.090	.110
L2	1.02	1.40	.040	.055
L3	1.27	1.78	.050	.070
L4	0	0.38	0	.015
R	0.46	0.74	.018	.029

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IXYS reserves the right to change limits, test conditions and dimensions

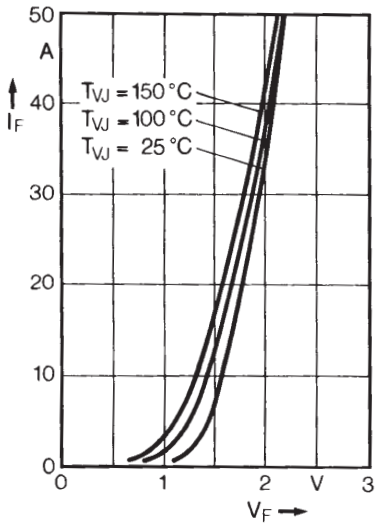

Fig. 1 Forward current versus voltage drop.

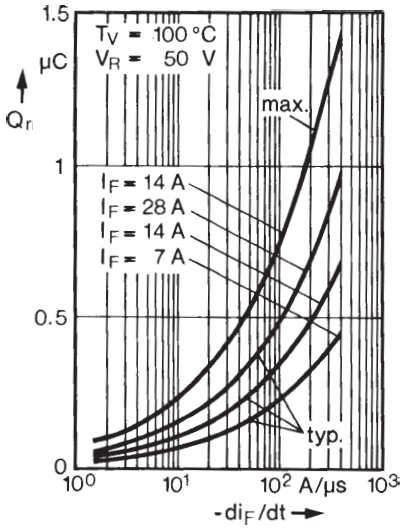

Fig. 2 Recovery charge versus $-di_F/dt$.

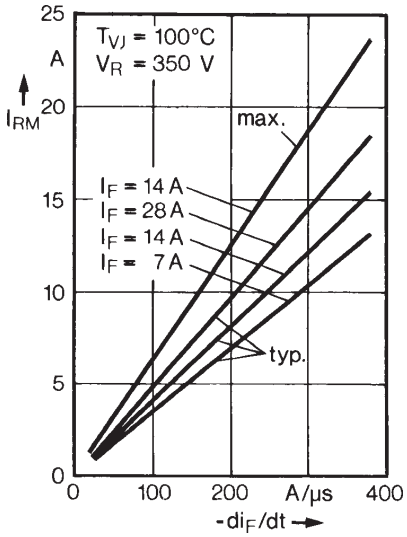

Fig. 3 Peak reverse current versus $-di_F/dt$.

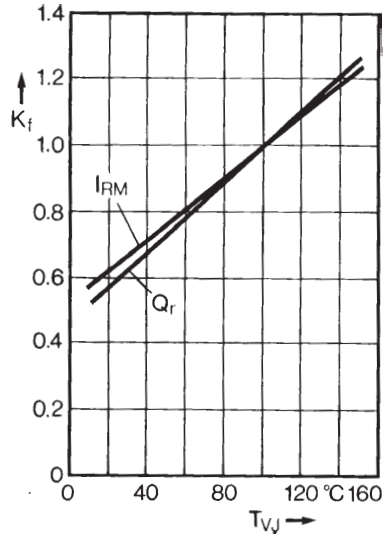

Fig. 4 Dynamic parameters versus junction temperature.

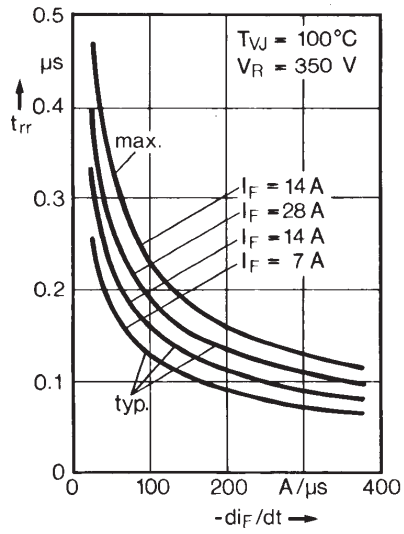

Fig. 5 Recovery time versus $-di_F/dt$.

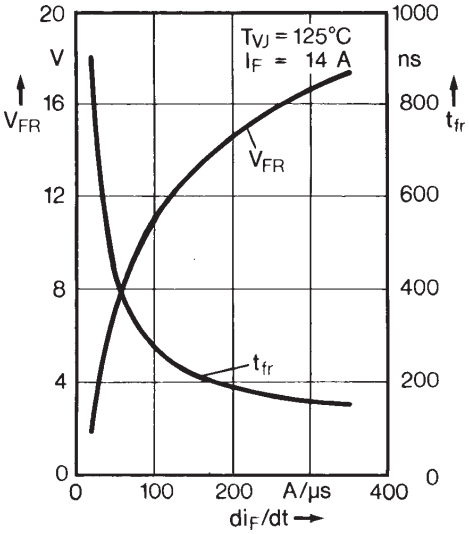

Fig. 6 Peak forward voltage versus di_F/dt.

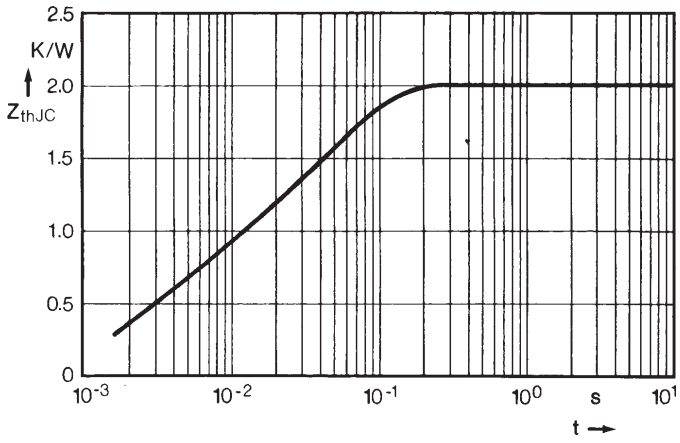

Fig. 7 Transient thermal impedance junction to case.